

in NATURE last week, the council of the Royal Astronomical Society have guaranteed 500*l.* for the expenses of Mr. Gill's expedition. Ascension has been fixed upon, not without a careful consideration of probable meteorological conditions about the time of the opposition of Mars in September, in which it is understood the records of the Meteorological Office have been of the greatest service, and in fact, have induced Mr. Gill to fix upon Ascension for the site of his temporary observatory in preference to St. Helena, the astronomical condition being about the same for the two islands, *i.e.*, their latitudes not differing much from the declination of the planet when nearest to the earth, so that it is observable at a considerable hour-angle on both sides of the meridian.

The *modus operandi* proposed by Mr. Gill, is as follows:—two stars, *a* and *b*, one preceding and the other following the planet, are selected for each night of observation, and their angle of position and distance relative to the planet are computed roughly for 4*h.* E. and 4*h.* W. hour-angle, and the right ascension and declination of the middle point between star and planet; so that the proper stars of comparison are readily found. The heliometer axis is directed to this middle point, the position-circle set to the position-angle, and the segments set to the approximate distance. The observer finds in the field of view a star and the planet; by turning the handle by which the segments are moved in distance, the images of star and planet are made to move relatively to each other in the direction of a line joining the objects, while if the position-handle is turned, the images move in the direction of a line perpendicular thereto. Suppose that the star *a* is viewed through segment A, and the planet through segment B. According to Mr. Gill's usual practice the observation would proceed thus:—

- I. Measure of position-angle.
- II. Measure of distance, both limbs.
- III. Reverse segments, and view star by segment B and planet by segment A.
- IV. Measure position-angle.
- This constitutes one measure.
- V. Repeat this process with star *b*.
- VI. Reverse position-circle and repeat the comparison with star *b*.
- VII. Compare again with star *a*.

This constitutes a complete symmetrical set, which Mr. Gill has found can be secured on an average in 1*h.* 30*m.*, sometimes in 1*h.* 10*m.*, or if there be interference from cloud it may occupy 2*h.*

In the measure of a position-angle, by a movement of the handle for distance, the star may be made to move, relatively to the planet along the line of separation of the lenses, so that the star successively occupies positions 1, 2, 3 . . . 3, 2, 1, &c. This motion may be very slow and the position-circle being set so that the motion of the planet completes the bisection, the observer has only to go on moving the star slowly till the limb is seen to symmetrically bisect the star (the time of which is noted) precisely as Jupiter's limb bisects one of his satellites.

The measure of distance is conducted with equal care, but is not so readily explained without a diagram. Mr. Gill finds his method possesses very great delicacy. It sometimes happens that it is not possible to find a star sufficiently bright to compare with Mars in his full light. In such cases the brilliancy of the planet can be easily kept down by a wire-gauze screen, which, by an arrangement at the eye-end, can be laid over either segment of the object-glass and at any angle thereto.

In a letter to M. Leverrier, published in the *Bulletin International* of April 27, Mr. Gill states that the observations of Juno, which he made with Lord Lindsay at the Mauritius with the same heliometer, showed that the determination of the diurnal parallax by measuring with this instrument the distance of the planet from a star preceding and a star following is susceptible

of an extreme precision, and he found the probable error in the determination of the planet's position for each complete observation of the morning or evening did not exceed $\pm 0''.075$. Lord Lindsay has stated that the value of the solar parallax, resulting from these observations of Juno (a single discordant one only being rejected) is $8''.82$, which approaches near to Prof. Newcomb's value, $8''.85$, adopted provisionally by the German astronomers, and to M. Leverrier's theoretical determination, $8''.86$. This sufficiently indicates the utility of the method, and Mr. Gill intends to avail himself of the close oppositions of the minor planets Ariadne and Melpomene during his visit to Ascension to obtain values of the parallax by observation on the same principle.

COMET 1877 II. (WINNECKE, APRIL 5).—This comet may be expected to prove a fine telescopic object during the absence of moonlight in the circumpolar sky, with its stellar-looking nucleus and double or broad fan-shaped tail. The annexed positions for midnight at Berlin are from elements by Herr Plath, of Hamburg, and have been received from Prof. Winnecke:—

		R.A.		Declination.		Log. Distance from Earth.
		h.	m.	s.		
May 4	...	23	26	5	...	+ 65° 59' 2 ... 9.99601
5	...	23	36	41	...	68 7 2 ... 9.99640
6	...	23	49	22	...	70 11 6 ... 9.99741
7	...	0	4	45	...	72 11 3 ... 9.99902
8	...	0	23	31	...	74 4 5 ... 0.00123
9	...	0	46	49	...	75 48 8 ... 0.00400
10	...	1	15	34	...	77 21 5 ... 0.00732
11	...	1	50	47	...	78 38 3 ... 0.01116
12	...	2	32	59	...	79 35 1 ... 0.01549
13	...	3	19	55	...	80 7 8 ... 0.02028
14	...	4	8	57	...	+ 80 13 6 ... 0.02548

The following orbit has been calculated by Mr. Hind from observations at Strasburg, on April 5 and 25, and at Berlin and Leipzig on April 14:—

Perihelion Passage, 1877, April 17.64687, G.M.T.

Longitude of Perihelion	...	253° 30' 9"	} Mean Equinox, 1877.0
Ascending Node	...	316 33 53	
Inclination	...	58° 54' 22"	
Distance in Perihelion	...	0.950250	
Heliocentric motion—retrograde.			

These elements represent the observations during the interval very closely.

NOTES

M. FLAMMARION has been authorised by M. Leverrier to use one of the largest refractors of the Paris Observatory for the investigation of the motion of double-stars round a common centre of attraction. This liberality on the part of the chief of the Paris Observatory is highly creditable. M. Leverrier, indeed, is desirous of placing the immense means of investigation possessed by the observatory at the service of a number of independent workers not belonging to the staff of the establishment, but who have given solid proofs of their zeal and capacity for research in some particular science. His ambition is to create at the observatory a national astronomical institution where qualified scientific men may find ample means for following their own special studies.

SIR DAVID MONRO, late Speaker of the House of Representatives in New Zealand and an active promoter of science in that colony, died at Nelson, New Zealand, on February 15. He graduated in Medicine in the University of Edinburgh in 1834, where his great grandfather, grandfather, and father successively held the Chair of Anatomy. He devoted the leisure of an active political life to the pursuit of botany, and by his discoveries, which were published by Dr. Hooker in his "New Zealand

Flora," he added largely to our knowledge of the vegetation of New Zealand, on which he also wrote an instructive essay that is published in the first volume of the *Transactions* of the New Zealand Institute.

WE learn with the greatest pleasure that the Health Committee of the Police Board of Glasgow has agreed to carry out at eight stations in that city the system of continuous automatic observation of the constituents of the air, special attention being given to its impurities arising from manufactures and other causes which has been devised and worked out since March, 1876, by Mr. E. M. Dixon, in connection with Dr. Russell, Medical Officer of Health. The Committee has already expended fully 200*l.* in fitting up a laboratory and the observing stations with the instruments required, and are prepared to expend a sum of 300*l.* per annum in carrying out this very important practical investigation. The results, including meteorological observations made in connection with the scheme, will be published monthly, the first number appearing in June next.

GAY-LUSSAC, the great French physicist and chemist, was born in 1778, and his centenary will be celebrated by a festival and the erection of a statue either in Limoges or Paris.

A SERIES of lectures upon zoological subjects will be given in the Zoological Gardens, Regent's Park, on Thursdays at 5 P.M., after Whitsuntide. The first lecture will be delivered in the Lion House, and others in the lecture-room near the Reptile House. May 24: "The Lion House and its Inhabitants," P. L. Sclater, F.R.S.; May 31: "Sea-urchins and Star-fishes," Prof. Huxley, F.R.S.; June 7: "Sloths and Ant-eaters," Prof. Flower, F.R.S.; June 14: "Whales and Porpoises," Prof. Flower, F.R.S.; June 21: "Man-like Apes," Prof. Garrod, F.R.S.; June 28: "Variation in Domestic Animals," W. B. Tegetmeier, F.Z.S.; July 5: "Hornbills and their Habits," Dr. Murie, F.Z.S.; July 12: "Birds of Prey," R. B. Sharpe, F.Z.S.; July 19: "Frogs and Toads," Prof. Mivart, F.R.S.; July 26: "The Ornithorhynchus," Prof. Garrod, F.R.S. These lectures will be free to Fellows of the Society and their friends, and to other visitors to the Gardens.

THE annual *conversazione* of the Royal Society was held at Burlington House on Wednesday week, and was numerously attended. There was a large collection of instruments brought together, among the principal of which were the following:—An Automatic Spectroscope, which can be used with 2, 4, or 6 prisms, solar eye-piece arrangement, and new split slit, whereby any lines in the spectrum can be measured; a Heliostat, with large crown-glass prisms, to be employed with the spectroscope; Governor for 18-inch reflector, which will keep time with a variation of rate of five seconds per minute, at pleasure; all designed and exhibited by Lieut.-Colonel Campbell, of Blythwood, and constructed by A. Hilger.—Prof. W. G. Adams exhibited an Apparatus for producing interference of light by means of thick plates, and Apparatus for the reflection and refraction of radiant heat and light, fitted to Clifton's optical bench, and constructed by Messrs. Elliott Brothers. The half-prism direct-vision spectroscope made for Greenwich, about which there has recently been a correspondence in *NATURE*, was also shown. Then there was a Hydroclinometer, an instrument for taking ranges, without any calculation, from coast batteries over 100 feet in height; a small hydroclinometer, a modified form of the above, for giving the inclination of slopes, &c., without any adjustment, and for larger guns; an electric position- and range-finder for coast batteries; a Field-Artillery range-finder; an Infantry range-finder; a patent self-adjusting optical square, which by a simple adjustment can immediately be corrected to the true right angle, without the aid of any other instrument; an electric chronograph, for the measurement of minute portions of time, velocities of shot, &c., by the

free fall of a weight; these were exhibited by Capt. Watkin, R.A.—Lieut. G. S. Clarke and Prof. Herbert M^rLeod showed an instrument called the Cycloscope, an apparatus for determining the speed of machinery by means of a tuning-fork or reed of known period; also for ascertaining the pitch of a tuning-fork by means of a cylinder rotating at a known speed. There were also Telephone and (patent) Thermo-electric Pile (in action), with specimens of Gray's telephone, exhibited by Messrs. C. and L. Wray; improved Holtz electrical machine with four plates and self-charging arrangement, in glass case, ready for use in any condition of the atmosphere, and Manometric apparatus, for showing effects of sound on a sensitive flame, exhibited by Mr. Ladd; teeth, bones, and ancient works of art lately found in caves in Derbyshire, exhibited by Mr. Boyd Dawkins, F.R.S.; specimens of cast and wrought iron treated by Prof. Barff's process for the prevention of corrosion, which consists in acting on iron at suitable temperatures with dry steam, exhibited by Prof. Barff; specimens of the core of well, from Meux's Brewery; the large induction-coil, with secondary wire of 280 miles, constructed for Mr. W. Spottiswoode by Mr. Apps (in operation), was shown in the meeting room, and Mr. Crookes's Otheoscope, of which we give an account this week.

ON Monday Prof. Boyd Dawkins commenced a series of eight Field Lectures on Geology at Owens College. Six of the lectures will be in connection with excursions to various places from Manchester.

MR. WILLIAM GOSSAGE, F.C.S., the inventor of several important processes in practical chemistry, died at Earlsleigh, Bowdon, Cheshire, on April 9, in his seventy-eighth year.

THE Council of the Royal Geographical Society have awarded the Royal medal to Capt. Sir George S. Nares, R.N., for having commanded the Arctic Expedition of 1875-6, and to Pundit Nain Singh, for having added a greater amount to our positive knowledge of the map of Asia than any individual of our time. In his first great journey he for the first time determined the position of Lhasa, the capital of Tibet, besides surveying the course of the great river Tsampo, or Bramaputra, from near its source to near its entrance into the Himalayan region; in his last he traversed and surveyed the high Plateau of Tibet from its extreme north-west to Lhasa, a line of 1,200 or 1,400 miles of entirely new country. No reward was ever better earned than that bestowed by the Society on Nain Singh, who, indeed, deserves to be ranked among the first of explorers. While pursuing his arduous and dangerous work he was paid at the rate of 7*l.* per month, and now retires, satisfied we believe, on a pension of 50*l.* a year. Through his labours we have now for the first time a scientific basis on which to construct a map of Tibet. A gold watch, with an appropriate inscription, was at the same time awarded to Capt. Albert Markham, R.N., for having commanded the northern division of sledges in the Arctic Expedition of 1875-6, and for having planted the Union Jack in 83 deg. 20 min. 26 sec. N., a higher latitude than had ever been reached by any previous expedition.

IT is but a poor set-off to the horrors of war that it is a means of spreading a real knowledge of geography; but that it does so was shown in this country during the last Oriental war—the Crimean. As might have been expected, numerous war-maps have already appeared. The most satisfactory of these maps is a large one published by Mr. Stanford on the scale of fifty miles to an inch, including Turkey in Europe and her tributary states, together with such parts of neighbouring countries in Europe and Asia as are more immediately connected with the settlement of the Eastern Question. Any one wishing to follow the movements of the two armies could not obtain a better guide. All the physical and political features, including the railways up to date, are shown with great clearness. Mr. Stanford publishes

two other war-maps, one on a smaller scale and at a cheaper price than the above, and Jankowsky's Russo-Turkish war-map, a picture or bird's-eye map of Turkey and the Black Sea. A very fine and moderate-priced map comes to us from Perthes, of Gotha. It is prepared by Dr. Petermann, and is evidently a compilation from several of the maps in Stieler's Atlas. It embraces all the country in Europe and Asia likely to be included in the theatre of war, so long at least as it is confined to the two combatants now in the field. This map, sold at a very moderate price, may be had in London from Mr. Stanford.

THE war just begun will in no way interfere, we believe, with the forthcoming Paris Exhibition. The works are progressing with such activity that everything but the Trocadero palace will be ready at an earlier date than was anticipated. The Trocadero building has been delayed by legislative difficulties, which, however, have been overcome, and that building will not be behind its time.

M. HENRY GIFFARD is constructing, near the Champ de Mars at Paris, a workshop for the preparation of sulphate of iron. The apparatus was tried for the first time last Friday, when the balloon *Eole* was inflated in an hour and a half, and was sent up with an aëronaut. The capacity of the balloon being 220 cubic metres, the rate of production is very satisfactory. It is expected that the sale of sulphate will cover almost all the expenses, so that numerous scientific ascents may be made in the ensuing summer. The monster captive balloon of 20,000 cubic meters will be inflated by the same process.

THE annual meeting of the Royal Institution was held on Tuesday. The Annual Report of the Committee of Visitors for the year 1876, testifying to the continued prosperity and efficient management of the Institution was read and adopted. The real and funded property now amounts to above 84,000*l.* entirely derived from the contributions and donations of the members. Seventy-two new members paid their admission fees in 1876.

THE forty-eighth anniversary of the Zoological Society was held on Monday. The number of fellows, fellows-elect, and annual subscribers at the close of the year 1876 amounted to 3,311, showing an addition to the strength of the society of seventy members during the year 1876. The number of honorary members at the same date was fourteen, of foreign members twenty-five, and of corresponding members 199. The total income of the society in 1876 was 34,955*l.*, exceeding that of the year 1875 by 6,216*l.* The total expenditure of the society in 1876 was 31,635*l.* The total assets of the society on December 31, 1876, were calculated to be 15,516*l.*, while the liabilities were reckoned at 4,430*l.* The total number of visitors to the society's gardens in 1876 had been 915,764, the corresponding number in 1873 (hitherto the most successful year in this respect) having been 713,048. The number of visitors in 1876 had therefore exceeded that of any other previous year since the opening of the gardens, by more than 200,000. The report stated that the total number of animals in the collection on December 31, 1876, had been 2,265.

IN the May part of Petermann's *Mittheilungen* Herr K. Zöppritz has a critical paper on Watson and Chippendall's Survey of the White Nile and Junker's Survey of the Sobat. Herr Zöppritz expresses some dissatisfaction with the observations of the former as being vague and careless and difficult to reconcile with data already obtained. A valuable paper by Dr. Dorst describes and discusses the movements of the ice between Greenland and Spitzbergen as observed by him in the steamer *Bienenkorb* in 1869. It is an important contribution to our knowledge of the currents of this region.

THE examination for the Sheepshanks Astronomical Exhibition, which is of the annual value of 50*l.* and tenable for three

years, will be held on May 21 in Trinity College Lecture-room No. 4. All undergraduates of the University are eligible, but in the event of a candidate who is not a member of Trinity College being elected, he must become a member of Trinity. Candidates are required to send their names, and, if not members of Trinity, certificates of moral character and good conduct to one of the tutors of Trinity on or before May 19.

A DETAILED account of Father Cecchi's remarkable seismograph to which we recently referred will be found in the January number (1877) of *Elettricità*. The Cecchi seismograph has been adopted with good success at several of the larger Italian observatories and meteorological stations. In order to enable also smaller establishments to obtain a similar apparatus at much less cost, Prof. Cecchi has lately constructed a simpler one on the same principle, which meets all the requirements for seismic observations and gives nearly as many and as exact data as the larger instrument. A full description of this is now being published in the *Elettricità*, and the adoption of it for meteorological stations may be strongly recommended. The whole cost will not exceed 4*l.* or 5*l.*

M. SICARD, member of the Italian Anthropological Society, on making excavations on his property near Kischeneff, in Bessarabia, at a place called Moguil Liondia, discovered a very large tumulus of earth, with human skeletons, remains of iron objects, and an amulet of carved bone. One of the corpses appeared to have been interred with a horse, much in the same way as the tribes of the Tehuelches and Pehuelches still bury their fellow-men. Unfortunately the skulls were dispersed, but M. Sicard is going to continue his excavations, and will give a detailed account of his highly interesting discovery in the *Rivista di Antropologia e Etnologia*, published by Prof. Mantegazza.

AT the last meeting of the Ethnographical Section of the Russian Geographical Society, M. Poliakov, referring to the results of his last journey on the Obi, pointed out the remarkable similarity between the present state of civilisation of the Ostiaks and that of the prehistoric inhabitants of the reindeer period of France and Middle Europe. After a description of the features which the present flora and fauna of the banks of the Obi have in common with those of Europe at that period, M. Poliakov described the primitive mode of life of the Ostiaks. Their utensils and implements almost exactly resemble those of the stone period and the islands of the Pacific, being made exclusively of stone, of teeth and claws of bears, and of bone, and their clothes being either furs or woven from nettle filaments. M. Poliakov described at length their mode of life, their wretched homes, their customs, their family relations, and their religion, the latter being a mixture of the rudest fetishism with the strangest superstitions. This people are rapidly fading away before the advance of European civilisation.

DURING the diluvial epoch, the Danube entering into the Vienna Basin, formed an inland sea, and covered the Tertiary formations with deep layers of so-called loess, a mixture of loam, lime, sand, and foliaceous mica. The Imperial Academy of Sciences at Vienna has lately set in operation an extensive series of excavations with the view of uncovering the secrets hidden beneath this thick coating of alluvium, and has already been rewarded by interesting discoveries. The excavations in the neighbourhood of Zeiselberg have disclosed a widespread deposit of bones mingled with numerous evidences of the presence of mankind. These consist in quantities of charcoal, bones which have been worked, artificially prepared flints, &c. The bones among which these prehistoric remains were found, are those of the bear, horse, mammoth, ox, reindeer, rhinoceros, and wolf, all belonging to the diluvial fauna, and all apparently inhabiting the Vienna Basin at that distant epoch in the com-

pany of man, for a chance gathering of these remains through the agency of water is precluded by the local topography of the place.

News from M. Prshevalsky, forwarded on March 23 by telegraph from Vernyi, appears in the official paper, the *Russian Invalid*. On February 11 he had reached Lake Lob-Nor, *vid* the Valley of the Lower Tarim. The population of the Valley is very sparse. Its height above the sea is somewhat more than 2,000 feet. Its flora and fauna very poor. The topography is quite different from that represented on the maps. He was, at the time of telegraphing, in the mountains Altyn-Tagh, some distance south of Lake Lob-Nor. The valleys of the exterior spurs of these mountains reach about 12,000 feet above the sea. Here, as well as in the lower regions there are wild camels. In the neighbourhood of Lob-Nor he found the ruins of two old towns. He was to spend February and March at Lob-Nor, April on the Lower Tarim, and May and June on the Tian-Shan, returning to Kuldja at the beginning of July.

WE have received as a contribution to the Gauss Fund, 1*l*. from Mr. G. Griffith.

THE additions to the Zoological Society's Gardens during the past week include an Egyptian Gazelle (*Gazella dorcas*) from Egypt, presented by Her Majesty the Queen; an Indian Leopard (*Felis pardus*) from India, presented by Dr. Sidney Smith; a Crested Porcupine (*Hystrix cristata*) from Ceylon, presented by Capt. Smerdon, s.s. *Orion*; a White Pelican (*Pelecanus onocrotalus*) from Egypt, presented by Mr. A. C. Henderson; a King Parrakeet (*Aplosmictus scapularis*) from New South Wales, presented by Miss Jones; a Suricate (*Suricata zenib*) from South Africa, presented by Mr. J. Forbes Dixon; an Indian Cobra (*Naia tripudians*) from Ceylon, presented by the Hon. W. D. Wright; a Beisa Antelope (*Oryx beisa*), two African Sheep (*Ovis aries*), eight Vulturine Guinea Fowls (*Numida vulturina*), from East Africa, a Toque Monkey (*Macacus pileatus*) from Ceylon, deposited; a Pigmy Marmoset (*Hapale pygmaeus*), two Bay-headed Parrots (*Caica leucogastra*), a Rough Terrapin (*Clemmys punctularia*) from the Upper Amazons, purchased.

SCIENTIFIC SERIALS

The American Journal of Science and Arts, April, 1877.—On the sensation of colour, by C. S. Peirce.—Note on the binocular phenomenon observed by Prof. Nipher, by J. Le Conte.—Revision of the genus *Belemnocrinus*, by C. Wachsmuth and F. Springer.—Thorpe's and Bunsen's methods for the estimation of nitrogen in nitrates, by S. W. Johnston.—Westfield during the Champlain period, by J. S. Diller.—New embryonic forms of trilobites, by S. W. Ford.—The winds of the globe, or the laws of atmospheric circulation over the surface of the earth, by J. H. Coffin.—On some nitro-derivatives of diphenylamide, by P. T. Austin.—On mineral analysis; on some fluorides; and on molecular volumes, by F. W. Clarke.—On the identity of the so-called Peganite of Arkansas with the Variscite of Breithaupt and Callamite of Damour, by A. H. Chester.—On a fibrous variety of sepiolite from Utah, by the same.—On Dr. Peale's notes on the age of the Rocky Mountains in Colorado, by J. J. Stevenson.

Poggendorff's Annalen der Physik und Chemie, No. 2, 1877.—The spectra of chemical compounds, by M. Moser.—Researches on the volume-composition of solid bodies, by M. Schröder.—Current regulator for gas, by M. Teclu.—Contribution to Boltzmann's theory of elastic reaction, by M. Kohlrausch.—Further communications on the connection between the viscosity and the galvanic conductivity of various liquids, by M. Grottrian.—On the theory of resonators, by M. Grinwis.—On photography of the less refrangible parts of the solar spectrum, by M. Vogel.—Researches on the motions of radiating and irradiated bodies, by M. Zöllner.—New proof of the falsity of the emission theory of light, by E. Feussner.—On double excitation of the ebonite electrophorus, by M. Schlösser.

Beiblätter zu den Annalen.—Quantitative comparison between friction and galvanic electricity in respect of tension, by M. Nystrom.—On the deduction of a new electrodynamic fundamental law, by M. Clausius.—Thermoelectric researches, by M. Tidblom.

THE Naturforscher (March).—From this part we note the following papers:—On the functions of the larger brain (cerebrum), by Herr Goltz.—On the expansion of growing vegetable cells through the tension existing between the contents of the cells and the membrane forming them, by Hugo de Vries.—On the spectrum of the new star in Cygnus, by R. Copeland.—On the atomicity of phosphorus, by Ira Remsen.—On the high tides in the River Elbe, by K. R. Bornemann.—On the reproduction of eels, by M. C. Dareste.—On the formation of hail, by H. Fritz.—On the inhalation of air by the roots of plants, by MM. P. P. Déhéraïn and J. Vesque.—On electrolysis accompanied by the development of hydrogen at both electrodes, by Emil Elsaesser.—On the daily and yearly course of magnetic declination, by J. Hann.—On the behaviour of leaves in an atmosphere free from carbonic acid, by B. Corenwinder.—On the companions of the pole star, by A. de Boe and others.—On the spreading of drops of liquids, by Fillipo Centolesi.—On the preparation of photographic plates in daylight, by Oswald Lohse.—On the origin of the flying power of bees, by Herr Dönhoff.—On the chlorophyll of *Coniferae* germinating in the dark, by R. Sachsse.—On the behaviour of chlorophyll in the vine, by G. Briosi.—On the glycogen contained in muscles, by Th. Chandonon.

Journal de Physique, March.—On the dynamical theory of gases, by M. Violle.—On the effects of a jet of air sent into water, by M. de Romilly.—On the suspension and ebullition of water on a large-meshed tissue, by the same.—On the phenomenon of the black drop and its influence on observation of the transit of Venus, by M. André.—The persistence of impressions on the retina, various experiments with the projection-phénakistoscope, by M. Gariel.—On Optography, by M. Kühne.

Reale Istituto Lombardo di Scienze e Lettere, Rendiconti, vol. x., fasc. iii.—On two recent works (on flagellation and the anatomical museum at Pavia) presented to the Institution, by M. Verga.—On some rare alterations of the first formation of the uterus and its attachments; on a cause not yet confirmed of distonia, by M. Sangalli.—On a new defence of the theory of Melloni on electrostatic induction, by M. Cantoni.—On the divisibility of comets into minute parts, and on a dark spot found in the Milky Way, by P. Secchi.

Revue des Sciences Naturelles, tome v. No. 4.—On the so-called cladodes of *Ruscus*, by M. Duval-Jouve.—Study of a chromogenic bacterium in the water of steeping of flax (*Bacterium rubescens*, Ray Lankester [?]), by Prof. Giard.—On the development of the *Anguilla Aceti*, Ehrb., by M. Hallez.—Economic Aquarium, by M. Sabatier.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, March 22.—“On Stratified Discharges *v.* Stratified and Unstratified Forms of the Jar-Discharge,” by William Spottiswoode, M.A., F.R.S. It is well known that if a Leyden jar be discharged through a vacuum tube, the discharge generally takes the form of an unbroken column of light, extending from the point of the positive terminal to the hilt of the negative, *i.e.*, to the extreme negative end of the tube; and that it shows no trace of either negative glow or intervening dark space. On the other hand, I have found, by experiments with a large Leyden battery, that if a tube having one terminal connected with the negatively charged coating of the battery and the other held beyond striking distance from the positively charged coating, the discharge in the tube will show a separation of the positive from the negative part by a dark intervening space. Under suitable circumstances of exhaustion it will also show striae, in the same manner as when the discharge is effected directly with a Holtz machine, having the conductors either closed or open beyond striking distance (see Roy. Soc. *Proceedings*, vol. xxiii. p. 460). Again, I have found, with the same battery, that if the tube be connected—otherwise as before—and held at a distance less than at first, but a little greater than striking distance, a stratified discharge much more brilliant and